WHAT IS CLAIMED IS:

1. A magnetic flow meter comprising:

measurement circuitry;

a flowtube;

at least first and second electrodes disposed within the flowtube and coupled to the measurement circuitry;

at least a reference electrode operably coupled to the measurement circuitry and disposed to electrically couple to process fluid within the flowtube; and

a current limiter coupled to the reference electrode and adapted to couple to the measurement circuitry, the current limiter configured to reduce corrosion of the reference electrode.

2. The flow meter of claim 1, wherein the reference electrode comprises platinum.

3. The flow meter of claim 1, and further comprising another reference electrode operably coupled to the measurement circuitry and disposed to contact process fluid.

4. The flow meter of claim 1, wherein the current limiter comprises a resistor.

5. The flow meter of claim 4 wherein the resistor has a resistance of between about 10 ohm and about 150 kohm.

6. The flow meter of claim 1, and further comprising a conductive flow meter case containing the transmitter circuitry and being coupled to the flowtube, wherein the current limiter is coupled to the case and the case is adapted to coupled to ground.

7. The flow meter of claim 1, wherein the reference electrode is coupled to the flowtube via a non-conductive coupler to electrically isolate the reference electrode from the tube.

8. The flow meter of claim 1 wherein the measurement circuitry includes an amplifier coupled to the first electrode and wherein the amplifier is referenced to a potential of the process fluid through the reference electrode and current limiter.

9. The flowmeter of claim 1 wherein the reference electrode comprises a ground ring.

10. A flowtube for a magnetic flow meter, the flowtube comprising:

a conductive tube having a non-conductive inner surface;

first and second electrodes disposed on an inner surface and being adapted to contact process fluid;

a reference electrode mounted to the conductive tube, and electrically isolated therefrom, the reference electrode being disposed to electrically couple to process fluid; and

a current limiter configured electrically coupled to the reference electrode and being adapted to couple in series to a measurement circuitry.

11. The flowtube of claim 10 wherein the current limiter is a resistor.

12. The flow meter of claim 10 wherein the resistor has a resistance of between about 10 ohm and about 150 kohm.

13. The flowtube of claim 10 wherein the reference electrode comprises platinum.

14. The flowtube of claim 10 wherein the reference electrode is mounted to the flowtube via a non-conductive coupler.

15. The flowtube of claim 10 wherein the reference electrode comprises a ground ring.

16. A method of reducing corrosion of a reference electrode configured to sense a potential of process fluid in a magnetic flow meter, comprising:

obtaining a current limiter; and

placing the current limiter electrically in series with the reference electrode and flow measurement circuitry.

17. The method of claim 16 wherein the current limiter comprises a resistor.

18. The method of claim 16 wherein the resistor has a resistance of between about 10 ohm and about 150 kohm.

19. The method of claim 16 wherein the reference comprises a ground ring.